UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/701,527	11/06/2003	Daniel Baumberger	42339-192058	7357

26694   7590   11/19/2009
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EXAMINER
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ART UNIT	PAPER NUMBER
2194	

MAIL DATE	DELIVERY MODE
11/19/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
Office Action Summary	10/701,527	BAUMBERGER, DANIEL
	Examiner	Art Unit	
	Abdou Karim Seye	2194	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>11 September 2009</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1,3-8,10,12-15 and 17-22</u> is/are pending in the application.

     4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1,3-8,10,12-15 and 17-22</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>06 November 2009</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

     a)☐ All b)☐ Some * c)☐ None of:

         1.☐ Certified copies of the priority documents have been received.

         2.☐ Certified copies of the priority documents have been received in Application No. _____.

         3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

     * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

1.   Claims 1, 3-8, 10, 12-15 and 17-22 are pending in this application.

Examiner Note

2.   Examiner had numerous communications with the applicant in an attempt to
allow the case based on the art of record from the previous office action by combining
the limitations of claims 1 and 3-5, but the applicant has requested that the examiner to
respond to the amendment of the claims filing on September 11 2009.

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set
forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this
application is eligible for continued examination under 37 CFR 1.114, and the fee set
forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action
has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on
September 11, 2009 has been entered.

Claim Rejections - 35 USC § 112

3.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter that the applicant regards as his invention.

4.   Claims 1, 3-8, 10, 12-13, 15, 17-22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

A. The following claims language is unclear and indefinite:

As per claim 1 lines 6-7, it's not clearly understood what is meant " remapping the page from being associated with the first virtual machine to be associated with the second virtual machine" since, it's not known any previous association of the claimed element " page" in line 3 with the first and second virtual machine. Appropriate clarifications are required.

As per claim 15 lines 8-9, it's not clearly understood what is meant " remap of the page from being associated with the first virtual machine to be associated with the second virtual machine" since, it's not known any previous association of the claimed element " page" in line 4 with the first and second virtual machine. Appropriate clarifications are required.

As per claim 21 lines 6-7, it's not clearly understood what is meant " remapping <u>the</u> <u>page</u> from being associated with the first virtual machine to be associated with the second virtual machine" since, it's not known any previous association of the claimed element " page" in line 3 with the first and second virtual machine. Appropriate clarifications are required.

As per claim 10, line 3 and claim 13, line 2 it's not clearly understood what "page " the applicant is referring to, since the applicant discloses in claim 8, line 15 " a message stored on <u>a page</u> " and in line 16 " remap of <u>a page"</u>. Appropriate clarifications are required.

As to per claim 21, lines 8-22, it is not clearly understood what is meant by " <u>wherein the updating comprises: at least one of: placing at least one of data or an</u> <u>address associated with the page into the first virtual machine control structure and</u> <u>exiting the first virtual machine; or exiting the first virtual machine immediately without</u> <u>placing the at least one of data or the address associated with the page into the first</u> <u>virtual machine control structure; placing the at least one of data or the address</u> <u>associated with the page into the second virtual machine queue; and dequeueing the</u> <u>second virtual machine queue, wherein dequeueing comprises: reading the at least</u>

one of data or address into a second virtual machine control structure associated with

the second virtual machine; and storing the at least one of data or address into the

address space associated with the second virtual machine; and processing within the

second virtual machine, a message within the page". Since it's not know how exiting of

the first virtual machine in lines 10-11 would allow to perform these subsequent steps in

lines 15-23 : placing the at least one of data or the address associated with the page

into the second virtual machine queue; and dequeueing the second virtual machine

queue, wherein dequeueing comprises: reading the at least one of data or address into

a second virtual machine control structure associated with the second virtual machine;

and storing the at least one of data or address into the address space associated with

the second virtual machine; and processing within the second virtual machine, a

message within the page. Also for examining purpose, examiner will interpret the term

"at least one of" in line 9 as if wherein the updating comprises: placing at least one of

data or an address associated with the page into the first virtual machine control

structure and exiting the first virtual machine . Applicant can make corrections in this

claim in response to this office action.

    As to dependent claims 3-7, 17-20 and 22, they are affected by the rejection of

claims 1, 15 and 21 above.

Claim Rejections - 35 USC § 103

5.   The following is a quotation of 35 U.S.C. 103 (a) which forms the basis for all

obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth
in section 102 of this title, if the differences between the subject matter sought to be patented and the
prior art are such that the subject matter as a whole would have been obvious at the time the invention
was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability
shall not be negatived by the manner in which the invention was made.

6.   Claims 1, 3-8, 10, 12-15 and 17-22 are rejected under 35 U.S.C. 103 (a) as

unpatentable over Nelson et al (US 6961941) in view of Fultheim et al (US

20050039180).

7.   As to claim 1, Nelson teaches the invention substantially as claimed including in

a method comprising:

     utilizing first and second virtual machine queues associated with respective first and

second virtual machines (FIG. 1 ; "VM 200" / "VM 200n"; FIG. 1/3; col. 15, lines 1-14;

wherein the "VMM action Queue" include the first and second virtual machine queues)

to communicate between the virtual machines using data stored in a page in response

to an instruction (col. 12, lines 36-45; col. 15, lines 13-35 and lines 56-62; wherein

"raise a network interrupt" coupled with the "interprocessor messages" include the

communication between the virtual machines; FIG. 2; "page data");

determining whether the instruction requires an immediate VM exit from the

first virtual machine (col. 12, lines 46-57; col. 15, lines 15-16; wherein the "interrupt "

causes the VM exit); and exiting the first virtual machine based on said determining (col.

16, lines 11-19).

8.   Nelson does not explicitly teach communicating the data stored in the page from

the first virtual machine to the second virtual machine by updating a page table by a

processor by remapping the page from being associated with the first virtual machine to

being associated with the second virtual machine.

9.   Fultheim teaches communication among nodes / first and second virtual

machines (FIG. 4/5; paragraph 29; paragraph 40-42) , updating page table and

remapping page (paragraph 61, FIG. 6; paragraph 102 ; 104 "update page table";

paragraph 75 and 77 ; "remapping"). It would have been obvious to a person of ordinary

skill in the art at the time the invention was made to modify Nelson's invention with

Fultheim's to have wherein utilizing comprises: communicating the data stored in the

page from the first virtual machine to the second virtual machine by updating a page

table by a processor by remapping the page from being associated with the first virtual

machine to being associated with the second virtual machine; and Wherein said

updating comprises: determining whether the instruction requires an immediate VM exit

from the first virtual machine; and exiting the first virtual machine based on said

determining. One would have been motivated to updating a page table , remapping a

page from being associated with the first virtual machine to being associated with the

second virtual machine, because it would increase data integrity in Nelson's system by
providing memory coherency among the memory of the Virtual machines .

10.   As to claim 3, Nelson and Fultheim failed to explicitly teach, wherein updating
further comprises: placing at least one of data or address associated with the page into
a first virtual machine control structure associated with the first virtual machine; placing
the at least one of data or address into the second virtual machine queue; and
dequeueing the second virtual machine queue. Nelson teaches data associated with
page (FIG. 2; col. 10, lines 43-44), and a virtual machine control structure associated
with a virtual machine (col. 10, lines 49-54; wherein the "rights" coupled with the
"privileged instruction" include the control structure of the VM); virtual machine queue
(col. 15, lines 1-14). One would have been motivated to have wherein updating further
comprises: placing at least one of data or address associated with the page into a first
virtual machine control structure associated with the first virtual machine; placing the at
least one of data or address into the second virtual machine queue; and dequeueing the
second virtual machine queue, because it would increase data integrity in Nelson's
system by providing memory coherency among the memory of the Virtual machines .

11.   .As to claim 4, Nelson and Fultheim failed to explicitly teach, wherein dequeueing
includes: reading the at least one of data or address into a second virtual machine
control structure associated with the second virtual machine; and storing the at least
one of data or address into the address space associated with the second virtual

machine. Nelson teaches reading data (FIG. 5/6; col. 19, lines 20-50), and a virtual machine control structure (col. 19, lines 35-37; "protected address space").

One would have been motivated to have wherein dequeueing includes: reading the at least one of data or address into a second virtual machine control structure associated with the second virtual machine; and storing the at least one of data or address into the address space associated with the second virtual machine, because it would increase data integrity in Nelson's system by providing memory coherency among the memory of the Virtual machines .

12.   As to claim 5, Nelson and Fultheim failed to explicitly teach, wherein the page contains a message and the method further comprises: processing the message within the second virtual machine. Nelson teaches pages, messages and processing of massages (col. 15, lines 47-67; "interprocessor messages"). One would have been motivated to have wherein the page contains a message and the method further comprises: processing the message within the second virtual machine, because it would increase data integrity in Nelson's system by providing memory coherency among the memory of the Virtual machines .

13.   As to claim 6, Nelson and Fultheim failed to explicitly teach, wherein exiting occurs immediately after placing the at least one of data or an address associated with the page into the first virtual machine control structure. Nelson teaches exiting of a VM occurring (col. 12, lines 46-57; col. 15, lines 20-34). One would have been motivated to

have wherein exiting occurs immediately after placing the at least one of data or an

address associated with the page into the first virtual machine control structure,

because it would increase data integrity in Nelson's system by providing memory

coherency among the memory of the Virtual machines .

14.   As to claim 7, Nelson teaches, conveying identification information associated

with the first and second virtual machines between the first and second virtual machines

via the first and second virtual machine queues (col. 4, lines 62-67; col. 5, lines 1-6;

"VM" and "identification information").

15.   As to claim 8, it is rejected for the same reasons as claims 1 and 3-4 above.

16.   As to claim 10 and 12, they are rejected for the same reasons as claim 3 above.

17.   As to claim 13, it is rejected for the same reasons as claim 5 above.

18.   As to claim 14, it is rejected for the same reasons as claim 7 above.

19.   As to claim 15, it is rejected for the same reasons as claim 1 above.

20.   As to claim 17, it is rejected for the same reasons as claim 3 above.

21.   As to claim 18, it is rejected for the same reasons as claim 4 above.

22.   As to claim 19, it is rejected for the same reasons as claim 5 above.

23.   As to claim 20, it is rejected for the same reasons as claim 7 above.

24.   As to claim 21, it is rejected for the same reasons as claims 1 and 3-5 above.

25.   As to claim 22, it is rejected for the same reasons as claim 7 above.

Response to Arguments

26.   Applicant's arguments with respect to the pending claims 1, 3-8, 10, 12-15 and

17-22 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

27.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Abdou Karim Seye whose telephone number is 571-

270-1062. The examiner can normally be reached on Monday - Friday 8:30 - 6.

        If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Sough Hyung can be reached on (571)272-6799. The fax phone number for

the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

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USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/VAN H NGUYEN/   /Abdou Karim Seye/
Primary Examiner, Art Unit 2194   Examiner, Art Unit 2194